Lesson Plan

Subject- FERROUS METALLURGY - 1 (Code): III-4 Name of faculty :

Semester: 3rd

Class allotted :50/60p Branch :METALLURGY Session: 2024(w)

Discipline	Semester	From date: 01/07/24 To date:26/10/24	Teaching Aid
Subject:	No. of days/ per week: 4p/week	Theory/ Practical –Topics/Lesson	
Week	Date/Period		
1	01/07/2024 TO 06/07/2024	**1.0 Raw Materials for Iron Making** 1.1 Different Raw Materials and their functions 1.2 Deposits of iron ores flux and coal in india with particulars reference to Odisha	White board & Marker
2	08/07/2024 TO 13/07/2024	**2.0 Quality requirements of raw materials** 2.1 Different types of iron ores 2.2 Composition and characteristics of raw materials. 2.3 Evaluation of iron ores. 2.4 Metallurgical coal	White board & Marker
3	15/07/2024 TO 20/07/2024	2.5 Difference between coal and coke 2.6 Required properties of coke for making iron 2.7 Flux and its types 2.8 Evaluation of Flux (available base & basicity	White board & Marker
4	22/07/2024 TO 27/07/2024	**3.0 Burden Preparation** 4.1 Quality of burden (physical & chemical properties) 4.2 Different types of agglomeration required for burden preparation for blast furnace	White board & Marker
5	29/07/2024 TO 03/08/2024	**4.0 Blast Furnace Fuel :** 4.1 Function of coke 4.2 Quality requirement of coke 4.3 Preparation of B.F. fuel in India	White board & Marker
6	05/08/2024 TO 10/08/2024	4.4 Auxiliary fuels 4.5 Fuel Injection 4.6 Factors affecting fuel consumption in blast furnace	White board & Marker
7	12/08/2024 TO 17/08/2024	**5.0 Blast furnace Operation** 5.1Charging methods and process 5.2 Blowing in 5.3 Drying 5.4 Filling 5.5 Blowing out 5.6 Banking in	White board & Marker

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Week	Date/Period	Theory/ Practical –Topics/Lesson	Teaching Aid
8	20/08/2024 TO 24/08/2024	5.7 Blowing down 5.8 Tapping 5.9 Fanning 5.10 Back draughting 5.11 Disposal of slags 5.12 Slags granulation & their utilization	White board & Marker
9	27/08/2024 TO 31/08/2024	**6.0 Blast furnace Accessories :** 6.1 Blast furnace refractories 6.2 Stack lining 6.3 Hearth lining 6.4 Hearth walls 6.5 Bosh lining 6.6 Blast furnace cooling arrangement 6.7 Shaft coolers 6.8 Hearth & bosh coolers 6.9 Tap holes and top hole drilling machine	White board & Marker
10	02/09/2024 TO 06/09/2024	6.10 Cast house 6.11 Tuyeres assembly 6.12 Raw materials section 6.13 Charge hosting appliances 6.14 Top charging system 6.15 Blowers, boilers, pumps 6.16 Gas cleaning plant 6.17 Blast furnace stoves	White board & Marker
11	09/09/2024 TO 13/09/2024	I.A	White board & Marker
12	14/09/2024 TO 21/09/2024	**7.0 Blast Furnace irregularities and Remedies :** 7.1 Hanging 7.2 Scaffolding 7.3 Slip 7.4 Chilled hearth 7.5 Pillaring	White board & Marker
13	23/09/2024 TO 28/09/2024	7.6 Break out 7.7 Chocking of gas off take 7.8 Flooding and coke ejection through tap hole 7.9 Leaking tuyers tap holes and coolers 7.10 Channeling	White board & Marker
14	30/09/2024 TO 05/10/2024	**8.0 Chemistry of Blast Furnace operation** : 8.1 Blast furnace profile 8.2 Thermal, physical and chemical profile 8.3 Physical chemistry of blast furnace process 8.4 Reactions in tuyere zone 8.5 Reaction in stack	White board & Marker

15	07/10/2024 TO 09/10/2024	8.6 Reaction in bosh 8.7 Reaction in hearth 8.8 Efficiency of B. F. process 8.9 Direct & indirect reduction 8.10 Silicon & sulphur reaction 8.11 Burden calculation for B/F operation	White board & Marker

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Week	Date/Period	Theory/ Practical –Topics/Lesson	Teaching Aid
16	17/10/2024 TO 19/10/2024	**9.0 Modern Development of Blast furnace operation** 9.1 Bell less charging 9.2 High top pressure operation 9.3 Humidification & oxygen enrichment of blast	White board & Marker
17	21/10/2024 TO 26/10/2024	9.4 External disiliconisation 9.5 desulphurization	White board & Marker

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